Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original) A three-dimensional shape measuring apparatus comprising:

a plurality of measurement heads for measuring a three-dimensional shape of a sample,

wherein three-dimensional shapes at a plurality of points on the sample are simultaneously measured using the plurality of measurement heads.

2. (original) The three-dimensional shape measuring apparatus according to claim 1, further comprising a stage movably holding the sample thereon,

wherein measurement is carried out by a combination of movement of the sample by the stage and positions of the plurality of measurement heads.

3. (original) A three-dimensional shape measuring apparatus comprising;

a measurement head for measuring a three-dimensional shape of a sample;

a stage rotatably holding the sample thereon; and

a movement mechanism for horizontally moving a relative position between the sample and the measurement head,

wherein three-dimensional shapes at a plurality of points on the sample are measured by a combination of operations of the stage and the movement mechanism and by the measurement head.

4. (original) The three-dimensional shape measuring apparatus according to claim 3,

wherein the measurement head has a rotation mechanism, and an angle of the measurement head is adjusted by the rotation mechanism in accordance with rotation of the sample.

5. (original) The three-dimensional shape measuring apparatus according to claim 1,

wherein the measurement head uses at least one of:

(1) a method of irradiating light on the sample, measuring at least one of an angle distribution or wavelength distribution of scattered light, and thereby estimating a three-dimensional shape of an irradiated area;

(2) a method of making a probe contact with the sample and measuring a three-dimensional shape while the probe and the sample are relatively scanned;

(3) a method of irradiating a charged particle beam onto the sample, detecting a secondary electron or reflected electron, and thereby measuring a three-dimensional shape;

(4) a method of irradiating a charged particle beam onto the sample, changing an angle of the irradiated beam to form a plurality of images, and measuring a three-dimensional shape from a positional relation between the plurality of images;

(5) a method of irradiating a charged particle beam onto the sample, detecting a hologram image thereof, and measuring a three-dimensional shape;

(6) a method of using a change in a light intensity or a level of sharpness due to a variation of a focus position of an light image under a microscope to measure a three-dimensional shape;

(7) a method of interfering detection light and reference light under a microscope to measure a three-dimensional shape; and

(8) a method of irradiating a laser beam onto the sample under a microscope, performing scanning, and thereby measuring a three-dimensional shape.

6. (original) The three-dimensional shape measuring apparatus according to claim 1, further comprising a measurement means for measuring a relative position between the measurement head and the sample,

wherein measurement information by the measurement means is used to control a position of at least one of the measurement head and the stage.

7. (original) The three-dimensional shape measuring apparatus according to claim 1, further comprising a measurement means for measuring a relative position between the measurement head and the sample,

wherein measurement information by the measurement means is used to correct a measurement result.

8. (original) The three-dimensional shape measuring apparatus according to claim 6,

wherein the measurement means performs measurement by using at least one of electrostatic capacity, air pressure, and light.

9. (original) The three-dimensional shape measuring apparatus according to claim 1,

wherein the measurement head has a measurement mode for measuring intimately a place intended to be measured in a measurement area.

10. (original) The three-dimensional shape measuring apparatus according to claim 9,

wherein the measurement mode measures width of a semiconductor wiring and deflection of an edge to quantify and output its measurement information.

11. (original) The three-dimensional shape measuring apparatus according to claim 1, further comprising a display means in which the three-dimensional shape measured by the measurement head is displayed so as to correspond to a position in the sample.

12. (original) The three-dimensional shape measuring apparatus according to claim 1, further comprising a display means in which a measurement result by the measurement head is quantified so as to correspond to a position in the sample and is displayed by at least one of a value and a display color.

13. (original) A processing apparatus using the three-dimensional shape measuring apparatus according to claim 1,

wherein the three-dimensional shape measuring apparatus is mounted on an etching device, a coater-exposure-developer, and a polishing device to measure the three-dimensional shape by the three-dimensional shape measuring apparatus before or after a processing or before and after processings.

14. (original) A semiconductor device manufacturing method using the processing apparatus according to claim 14, the method comprising the step of:

observing a semiconductor circuit pattern or a resist pattern; and

feeding back, feeding forward, or feeding back and forward an observation result to an operative condition of the processing apparatus.

15. (original) The semiconductor device manufacturing method according to claim 14,

wherein a condition to be fed-back or fed-forward includes at least one of an etching condition, a exposure and development condition, and a polishing condition.

16. (new) The three-dimensional shape measuring apparatus according to claim 3,

wherein the measurement head uses at least one of:

(1) a method of irradiating light on the sample, measuring at least one of an angle distribution or wavelength distribution of scattered light, and thereby estimating a three-dimensional shape of an irradiated area;

(2) a method of making a probe contact with the sample and measuring a three-dimensional shape while the probe and the sample are relatively scanned;

(3) a method of irradiating a charged particle beam onto the sample, detecting a secondary electron or reflected electron, and thereby measuring a three-dimensional shape;

(4) a method of irradiating a charged particle beam onto the sample, changing an angle of the irradiated beam to form a plurality of images, and measuring a three-dimensional shape from a positional relation between the plurality of images;

(5) a method of irradiating a charged particle beam onto the sample, detecting a hologram image thereof, and measuring a three-dimensional shape;

(6) a method of using a change in a light intensity or a level of sharpness due to a variation of a focus position of an light image under a microscope to measure a three-dimensional shape;

(7) a method of interfering detection light and reference light under a microscope to measure a three-dimensional shape; and

(8) a method of irradiating a laser beam onto the sample under a microscope, performing scanning, and thereby measuring a three-dimensional shape.